

Vision Painting Inc. Safety Management System

CONFINED SPACE PROGRAM

1. POLICY

It is the policy of Vision Painting Inc. to provide a safe and healthful work environment. Working inside Permit Required Confined Spaces (PRCS, permit spaces) presents many unique and serious hazards.

2. PURPOSE

This procedure identifies the known hazards and outlines the requirements necessary to work in permit spaces as required by the Occupational Safety and Health Administration (OSHA) Permit Required Confined Space standard (29 CFR 1910.146). This includes:

- 2.1 Implement the measures necessary to prevent unauthorized entry;
- 2.2 Identify and evaluate the hazards of permit spaces before employees enter them;
- 2.3 Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following:
- 2.4 Specifying acceptable entry conditions;
- 2.5 Providing each authorized entrant or that employee's authorized representative with the opportunity to observe any monitoring or testing of permit spaces;
- 2.6 Isolating the permit space;
- 2.7 Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards;
- 2.8 Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards; and
- 2.9 Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry.
 - 2.9.1 Vision Painting Inc. will provide the following equipment at no cost to employees, maintain that equipment properly, and
 - a. ensure that employees use that equipment properly;
 - b. Testing and monitoring equipment needed;
 - c. Ventilating equipment needed to obtain acceptable entry conditions;
 - d. Communications equipment necessary for compliance;
 - e. Personal protective equipment insofar as feasible engineering and work practice controls do not adequately protect employees;
 - f. Lighting equipment needed to enable employees to see well enough to work safely and to exit the space quickly in an emergency;
 - g. Barriers and shields;
 - h. Equipment, such as ladders, needed for safe ingress and egress by authorized entrants;
 - i. Rescue and emergency equipment needed to comply; and
 - j. Any other equipment necessary for safe entry into and rescue from permit spaces.
 - k. Evaluate permit space conditions as follows when entry operations are conducted:
 - l. Test conditions in the permit space to determine if acceptable entry conditions exist before entry is authorized to begin, except that, if isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), pre-entry testing shall be performed to the extent feasible before entry is authorized and, if entry is authorized, entry conditions shall be continuously monitored in the areas where authorized entrants are working;
 - m. Test or monitor the permit space as necessary to determine if acceptable entry conditions are being maintained during the course of entry operations; and

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- n. When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.
- o. Provide each authorized entrant or that employee's authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces;
- p. Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that the employer conduct such reevaluation because the entrant or representative has reason to believe that the evaluation of that space may not have been adequate; and
- q. Immediately provide each authorized entrant or that employee's authorized representative with the results of any testing conducted.

3. RESPONSIBILITIES AND AUTHORITIES

Vision Painting Inc. will designate the persons who are to have active roles (as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the training.

3.1. DUTIES OF PRCS COORDINATOR (SAFETY OFFICER)

The PRCS Coordinator is responsible for the management of the PRCS Entry Program. The PRCS Coordinator will:

- a. Evaluate the facility for permit spaces and document appropriately.
- b. Generate and issue the PRCS Entry Permit (entry permit).
- c. Maintain, calibrate and issue instrumentation required for PRCS entry.
- d. Develop and deliver PRCS training classes.
- e. Audit PRCS program and review canceled entry permits annually.
- f. Perform any needed personal or area industrial hygiene monitoring.
- g. Select personal protective equipment as needed for PRCS entry.
- h. Provide technical assistance and support.
- i. Complete permit and perform air monitoring

3.2. DUTIES OF ENTRY SUPERVISORS (FIELD SUPERVISORS)

Entry Supervisors will be specially trained persons qualified to assess the hazards and ensure safe work within permit spaces. The Entry Supervisors will:

- a. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
- b. Verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
- c. Terminate the entry and cancel the permit as required when operations are completed or when a condition of entry is not met or any condition exists that in his/her judgment deems it appropriate to terminate the entry.
- d. Verify that rescue services are available and that the means for summoning them are operable.
- e. Remove unauthorized individuals who enter or attempt to enter the permit space during entry operations.
- f. Ensure that only properly trained workers perform authorized entrant and attendant duties.

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Verification is provided individual certification received after training. In addition, the industrial hygiene and safety staff can verify certification of training records.

g. Determine, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

3.3. DUTIES OF ATTENDANTS (TRAINED WORKERS)

Vision Painting Inc. will provide an Attendant for every PRCs entry. Attendants will:

1. The attendant will only monitor 1 permit space at a time, with no exceptions.
2. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms (including behavior effects), and consequences of the exposure. This will be accomplished during the Pre-entry Safety Meeting (pre-entry meeting).
3. Continuously maintain an accurate count of authorized entrants on the entry permit.
4. Remain outside and not enter the permit space during entry or rescue operations until relieved by another attendant.
5. Continuously communicate with authorized entrants
6. Monitor activities inside and outside the permit space to determine if it is safe for entrants to remain in the permit space.
7. Summon rescue and other emergency services as soon as the attendant determines that an entrant may need to escape from the space.
8. Take the following actions when unauthorized persons approach or enters a permit space while entry is underway:
 - a. Warn the unauthorized persons that they must stay away from the permit space.
 - b. Advise the unauthorized persons that they must exit immediately if they have entered the permit space.
 - c. Inform the Authorized Entrants and the Entry Supervisor if unauthorized persons have entered the permit space.
9. Perform no duties that might interfere with his/her primary duty, to monitor and protect the authorized entrants.
10. Inform the Entry Supervisor immediately of any unsafe conditions and the actions taken.

3.4. DUTIES OF AUTHORIZED ENTRANTS (TRAINED WORKERS)

Authorized entrants will:

1. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure. This will be accomplished during the pre-entry meeting. The entry permit will contain this information.

2. Properly use equipment as required to ensure safe working conditions.
3. Communicate with the attendant as necessary to enable him/her to alert entrants of the need to evacuate the space.
4. Alert the attendant whenever:
 - a. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or
 5. The entrant detects a prohibited condition.
11. Exit from the permit space as quickly as possible whenever:
 - a. An order to evacuate is given by the attendant or the Entry Supervisor.

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- b. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
- c. The entrant detects a prohibited condition.
- d. An evacuation alarm is activated.

4. PROCEDURE AND CONTROLS

4.1. EVALUATION OF FACILITY WORKPLACES

The PRCS Coordinator will evaluate the facility workplaces to determine the specific location of all permit spaces. Both initial and periodic evaluations will be performed. The PRCS Evaluation Form in Attachment 1 will be used for space evaluation. A space may be declassified as a nonpermit required confined space (non-permit space) if the space poses no actual or potential atmospheric hazards and if all hazards with the space are eliminated without entry. If hazards arise within a permit space that has been declassified to a non-permit space each employee will exit the space. The PRCS Coordinator will then investigate the incident and determine the proper classification for the space.

4.2. EMPLOYEE NOTIFICATION

Employees will be informed of the existence and location of permit spaces by using a combination of training and posting of danger signs or tags. A sign/tag reading "DANGER— PERMIT-REQUIRED PERMIT SPACE, DO NOT ENTER" or using other similar language will be used. An inventory of spaces identified as permit and non-permit required confined spaces is contained in the company files.

4.3. PERMIT SPACE HAZARDS

The PRCS Coordinator will perform a hazard assessment on each permit space during the facility evaluation. Hazards will be listed on the PRCS Entry Permit (entry permit). Types of hazards to be assessed include:

4.3.1. Atmospheric Hazards

Atmospheric hazards are responsible for the most deaths and injuries when working in permit spaces. The need and frequency of monitoring atmospheric hazards will be outlined on the entry permit. Types of atmospheric hazards include:

1. Oxygen Deficiency/Enrichment - A prohibited condition exists in a permit space when the oxygen concentration is deficient or enriched (less than 19.5 or greater than 23.5 percent oxygen by volume). Permit spaces will be ventilated until tests indicate acceptable entry conditions.
2. Flammable Atmospheres - A prohibited condition exist in a permit space when the concentration of flammable vapor or gas is greater than 10 percent of the LEL. Entry will not be allowed until the permit space has been ventilated below 10 percent of the LEL. Concentrations of flammable gas or vapor below 10 percent of the LEL may be toxic. Therefore, proper personal protective equipment (PPE) may be specified by the PRCS Coordinator prior to entry.
3. Toxic Atmospheres - Toxic atmospheres will be monitored by the Entry Supervisor before employees are permitted to enter any permit space that has contained liquids, vapors, gases, or solids of toxic, corrosive, or irritant nature (or if the permit space has been fumigated). Results of toxic monitoring will be compared to the OSHAs Permissible Exposure Limits (PELs) and

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American Conference for Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs). A prohibited condition exists when the atmosphere of a permit space is found to be in excess of the PEL or TLV. If ventilation cannot reduce the concentration below the PEL or TLV, personal protective equipment will be used. However, ventilation efforts will be continued in order to maintain the level of contaminants as low a concentration as possible. If the concentration of toxic contaminants cannot be accurately determined by field testing equipment, and if tests for flammability and oxygen have shown the atmosphere to be safe, employees will be permitted to enter the permit space only when provided with appropriate personal protective equipment. However, ventilation efforts will be continued to maintain the contaminants at as low a concentration as possible.

4. Other Atmospheric. Due to variable needs, the nature of the work to be done may require entry into a permit space subject to atmospheric contaminants or oxygen deficiency, without complete ventilation of the space, or where test equipment are not available. Entry may be approved provided that:

- a. The atmosphere within the space will be assumed to be IDLH.
- b. A supplied air respirator and other protective equipment will be worn as prescribed by the PRCS Coordinator.
- c. Safety harnesses and lifelines will be used.
- d. An attendant, also provided with appropriate required personal protective equipment, is stationed outside the permit space, holding the lifelines and observing or maintaining communication with the employees in the permit space.
- e. Rescue team is on-site and in stand-by readiness

4.3.2. Other Serious Hazards

Other serious hazards to be evaluated include:

- a. Temperature extremes
- b. Noise
- c. Slip, trip, fall
- d. Electrical
- e. Moving parts
- g. Engulfment

4.4. ALTERNATE PROCEDURES

Vision Painting Inc. will use alternate procedures under the following conditions:

1. When it can be demonstrated that the only hazard posed by the permit space is an actual or potential hazardous atmosphere
2. It can demonstrated that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry
3. Vision Painting Inc. develops monitoring and inspection data that supports the demonstrations required by 29 CFR 1910.146 paragraphs (c)(5)(i)(A) and (c)(5)(i)(B) of this section

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4. The determinations and supporting data required by 29 CFR 1910.146 paragraphs (c)(5)(i)(A), (c)(5)(i)(B), and (c)(5)(i)(C) are documented by the employer and are made available to each employee who enters the permit space under the terms of 29 CFR 1910.146 paragraph (c)(5) of this section or to that employee's authorized representative; and

5. Entry into the permit space under the terms of paragraph (c)(5)(i) n is performed in accordance with the requirements of 29 CFR 1910.146 paragraph (c)(5)(ii) of this section.

4.4.1. Alternate Procedure Requirements

The following requirements apply to entry into permit spaces that meet the conditions set forth in paragraph (c)(5)(i).

1. Any conditions making it unsafe to remove an entrance cover will be eliminated before the cover is removed. When entrance covers are removed, the opening will be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.

2. Before an employee enters the space, the internal atmosphere will be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee who enters the space, or that employee's authorized representative, will be provided an opportunity to observe the pre-entry testing required by this paragraph.

- a. Oxygen content,
- b. Flammable gases and vapors, and
- c. Potential toxic air contaminants.

3. There may be no hazardous atmosphere within the space whenever any employee is inside the space.

4.4.2. Use Of Continuous Forced Air Ventilation

Continuous forced air ventilation will be used, as follows:

- a. An employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere;
- b. The forced air ventilation will be so directed as to ventilate the immediate areas where an employee is or will be present within the space and will continue until all employees have left the space;
- c. The air supply for the forced air ventilation will be from a clean source and may not increase the hazards in the space.
- d. The atmosphere within the space will be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space, or that employee's authorized representative, will be provided with an opportunity to observe the periodic testing required by this section.

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4.4.3. Detection of hazard

If a hazardous atmosphere is detected during entry:

- a. Each employee will leave the space immediately;
- b. The space will be evaluated to determine how the hazardous atmosphere developed; and
- c. Measures will be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.
- d. The employer will verify that the space is safe for entry and that the pre-entry measures required by paragraph (c)(5)(ii) have been taken, through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification will be made before entry and will be made available to each employee entering the space or to that employee's authorized representative.

4.5. ENTRY REQUIREMENTS

(1) This section applies if the workers of more than one employer perform work in the same confined space or related work with respect to the same confined space.

(2) Before any worker enters the confined space or begins related work with respect to the confined space, the lead employer shall prepare a co-ordination document to ensure that the duties imposed on employers in a way that protects the health and safety of all workers who perform work in the confined space or related work with respect to the confined space.

(3) Without restricting the generality of subsection (2), the co-ordination document may provide for the performance of a duty or duties referred to in that subsection by one or more employers on behalf of one or more other employers, with respect to some or all of the workers.

(4) A copy of the co-ordination document shall be provided to,

(a) each employer of workers who perform work in the same confined space or related work with respect to the same confined space; and

(b) the joint health and safety committee or health and safety representative, if any, for each employer of workers who perform work in the same confined space or related work with respect to the same confined space.

4.5.1. Document Control - The entry permit contained in Attachment 3 will be prepared, issued, terminated and retained as follows:

- a. Vision Painting Inc. will develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this section
- b. The Entry Supervisor is responsible for preparing and issuing the entry permit.
- c. The Entry Supervisor is responsible for use and termination of the entry permit. Use includes review of proper entry and exit requirements with other personnel. It also includes having all personnel sign the document as an acknowledgment of understanding of PRCS operations. The

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entry permit will be retained at or near the entrance to the permit space. Upon termination of operations the entry permit will be cancelled and returned to the PRCS Coordinator.

- d. Upon return, the PRCS Coordinator will file the entry permit in the company files. Canceled entry permits will be retained for 1 year and will be used in the annual PRCS review.

4.5.2. Permit Space Preparation - The Entry Supervisor is responsible for preparing the permit space for subsequent entry. Requirements may include:

1. Isolating the permit space. This includes preventing accidental introduction into the permit space of hazardous materials through interconnecting equipment such as piping, ducts, vents, drains or other means. Isolation may include any of the following:

- a. Inserting a suitable full pressure blank in piping between the flanges nearest to the permit space.
- b. Removing a valve, spool piece or expansion joint as close as possible to the permit space and placing a blank or cap on the open ends.
- c. Double block and bleed by shutting a least two valves in piping leading to the permit space, opening a bleed off path to atmosphere between the shut valves, and/or locking/tagging these valves.

2. All energy sources will be evaluated and if determined to be hazardous to permit space entrants will be secured, relieved, disconnected and/or restrained before personnel are permitted to enter. Energy sources to be considered include but are not limited to: electrical, mechanical, pneumatic and hydraulic. Machinery and equipment containing unguarded moving parts that are located in the permit space where they could cause injury to entrants or attendant will be deenergized and tagged out or locked and tagged out. Reference Vision Painting Inc. Lockout/ Tagout Procedure for control of energy requirements.

3. Place guards around the openings of permit spaces if necessary. Guarding can be in the form of a railing, a temporary cover or any other temporary barriers that provides protection. This measure will protect employees from falling into the space and protect entrants from foreign objects entering the space.

4. Check the entrance cover for hazards before removal. Hazards may include high temperature and pressure.

5. After termination of operations the space will be returned to original status by the Entry Supervisor.

4.5.3. Air Monitoring - Atmospheric testing is required for two distinct purposes: evaluation of the hazards of the permit space and verification that acceptable entry conditions exist.

1. Evaluation Testing - The atmosphere of a permit space will be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres that

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may exist or arise. This will provide the data used in the development of acceptable entry conditions. Collection and interpretation of data will be performed by the PRCS Coordinator.

2. Verification Testing - The atmosphere of a permit space which may contain a hazardous atmosphere will be tested prior to entry for residues of all contaminants identified by the evaluation testing. This test will provide verification that permits space atmospheres are within the range of acceptable entry conditions as outlined on the entry permit. The Entry Supervisor will perform this verification testing. Results of testing (i.e., actual concentration, etc.,) will be recorded on the entry permit. Test for atmospheric hazards in the following order:

- a. Oxygen
- b. LEL
- c. Toxic Materials

3. Prior to employee entry into a permit space, the Entry Supervisor will test the atmosphere of the space for the presence of flammable, explosive, or toxic contaminants and for a deficiency or excess of oxygen. The purpose of this test is to determine the nature and extent of any such hazard. Meters used for testing will be maintained and calibrated by the PRCS Coordinator. They will be issued with the entry permit. Meters will be calibrated consistent and at a frequency prescribed by the manufacturer. In addition, meters may be re-calibrated if problems occur during use. Tests must be made for at least the minimum response time of the test instrument specified by the manufacturer. When monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope should be tested at a distance of approximately 4 feet (1.22 m) in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress should be slowed to accommodate the sampling speed and detector response. Before an employee enters the space, the internal atmosphere shall be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee who enters the space, or that employee's authorized representative, shall be provided an opportunity to observe the pre-entry testing required by this section.

a. The atmosphere within the space will be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space, or that employee's authorized representative, will be provided with an opportunity to observe the periodic testing required by this section.

- b. Vision Painting Inc. will reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that the employer conduct such reevaluation because the entrant or representative has reason to believe that the evaluation of that space may not have been adequate.

4.6. VENTILATION REQUIREMENTS

Ventilation will be used as the primary control for atmospheric hazard during permit space operations. Personnel will leave the permit space anytime a failure in ventilation occurs.

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4.6.1. Pre-Entry Ventilation Requirements - The following are pre-entry ventilation requirements which will be specified on the entry permit:

1. Natural or mechanical ventilation is a prerequisite to work in permit spaces.
2. The permit space will be ventilated to prevent the accumulation of:
 - a. Flammable atmospheres above 10 percent of the lower flammable limit (LEL.)
 - b. Concentrations of combustible dust in excess of LFL.
 - c. Toxic or other contaminants in the atmosphere above the PEL or TLV.
 - d. Toxic and other contaminants having no rated PEL or TLV.
 - e. Oxygen enriched or deficient atmospheres.
3. The permit space will be purged of contaminants with safe, respirable air unless inerting is required.
4. Low suction pressure-type air movers will be used to purge containers that are constructed of light-gauge metal or the airflow rate will be controlled to preclude collapse of the container.
5. When flammable contaminants are to be purged, ventilation equipment designed for use in hazardous locations will be employed and precautions taken to eliminate all sources of ignition.
6. Oxygen (sometimes improperly called "air") will not be used to ventilate permit spaces.
7. The Entry Supervisor will check periodically to ensure that contaminated air from the permit space is exhausted to a location where it presents no hazard to employees or equipment.
8. Any hazardous concentrations will be diluted by the use of blowers or additional ducting as necessary.
9. Where cleaning operations involve the use of chemical solvents, the PRCS Coordinator will determine the flammable or toxic properties of the cleaning solvent as part of the overall permit space hazard assessment.

4.6.2. Ventilation Requirements During Entry - Ventilation will be provided continuously during permit entries. The following requirements will be observed when using ventilation:

1. The Entry Supervisor or an individual authorized by the Entry Supervisor will adjust the ventilation as required to keep any concentration of contaminants within acceptable entry conditions.
2. If, during the course of cleaning, uncontrolled exhaust of atmospheric contaminants from the permit space is hazardous to employees, the Entry Supervisor will establish ventilation to create a slight vacuum on the permit space at manway covers, cleanout covers, or other closures are removed. The Entry Supervisor will determine that the exhausted air is ducted to a location where it will not constitute a hazard to employees or equipment.

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3. The intake of the exhaust system will be located near the floor for contaminants heavier than air and near the top for contaminants equal to or lighter than air.
4. When toxic cleaning solvents are used as in a permit space, the Entry Supervisor will ensure that one or more of the following precautions are taken to safeguard the health of the employees:
 - a. The cleaning operation will be enclosed completely to prevent the escape of vapor into the working space.
 - b. Mechanical exhaust ventilation will be provided to remove vapors at the source and the concentration of the contaminants in the space will be maintained below the PEL or TLV.
 - c. Where neither of the above requirements can be achieved, employees will wear appropriate protective equipment.
 - d. When flammable substances are used inside the permit space, the Entry Supervisor will ensure that the atmosphere within the space does not exceed 10% of the LEL. If this limit is exceeded, work will be stopped and the space evacuated until safe conditions are met
5. The ventilation will be so directed as to ventilate the immediate areas where an employee is or will be present with the space.
6. Ventilation will continue until all employees have left the space.

4.7. HOT WORK PRACTICES IN PERMIT SPACES

Operations capable of providing a source of ignition such as riveting, welding, cutting, burning, and heating, will not be performed in a permit space until written authorization is obtained by the Entry Supervisor. Written authorization is obtained by the preparation and issuance of a Hot Work Permit. The PRCS Coordinator will only prepare and issue Hot Work Permits for operations in permit spaces. A copy of a Hot Work Permit along with procedures for preparing is found in the Vision Painting Inc. Hot Work Program. Other

requirements for performing hot work in permit spaces include:

1. If hot work is to be done in or on a space that has contained a flammable liquid, vapor, or gas or adjacent to such a space, both will be cleaned or inerted. Care must be taken in using inerting gases since they will create oxygen deficient atmospheres. After cleaning or inerting, the Entry Supervisor will monitor for flammable vapors or gases and oxygen deficiency prior to starting hot work at the beginning of each day, shift or following a shutdown period. In addition periodic monitoring may be required. The site specific Hot Work Permit will outline monitoring requirements.
2. If the concentration of flammable vapors exceeds 10 percent of the LEL or the oxygen level becomes deficient, hot work will be stopped until the source of the problem is located and resolved or sufficient ventilation is provided to maintain acceptable entry conditions.
3. Entry Supervisor will inspect, monitor and verify the following requirements have been met:
 - a. Monitoring of spaces adjacent to the permit space in which the hot work is to be performed, if they last contained a flammable liquid, vapor, gas, or have been inerted.

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- b. All piping has been properly isolated and purged or inerted.
- c. Where possible, all combustibles, including any dry residues, in the vicinity of the hot work will be removed to a safe place or, if they cannot be moved, such items will be covered by a noncombustible blanket, flame-resistant tarpaulin, or other means to prevent ignition from heat, sparks, and slag.
- d. In a permit space having last contained dry materials that create an explosive atmosphere when dispersed in air, the Hot Work Permit will be issued only after the Entry Supervisor, through personal inspection, has ensured that the following requirements are satisfied:
 - e. All loose dust has been removed from the permit space and all surfaces have been thoroughly cleaned;
 - f. The permit space has been isolated mechanically to prevent reintroduction of the dry material;
And
 - g. Adequate fire extinguishing equipment is available at the site.

4. Welding and cutting in permit spaces may introduce a number of potentially hazardous materials such as fluxes, coatings, coverings, and filler metals. A Material Safety Data Sheet will be required to be attached to the entry permit for any products used in a permit space. These hazards will be reviewed by the Entry Supervisor and communicate to the attendants and authorized entrants during the pre-entry meeting. Other requirements when welding in permits spaces include:

- a. All welding and cutting operations in permit spaces will be adequately ventilated to prevent the accumulation of toxic materials or possible oxygen deficiency. This applies not only to the welder but also to helpers and other personnel in the immediate vicinity.
- b. Welding or cutting in permit spaces involving metals containing lead, beryllium, cadmium, and mercury, including paint, will be performed using local exhaust ventilation or proper respiratory protection. In all cases, workers in the immediate vicinity of the welding or cutting operation will be protected as necessary by local exhaust ventilation or proper respiratory protection. Selection of respiratory protection used for control of fumes generated during welding and cutting operation will be in accordance with the Vision Painting Inc. Respiratory Protection Procedure.
- c. Before welding, cutting, or heating begins, the flammability and thermal decomposition products of the coating will be considered (surfaces covered with a preservative or protective coating). Where coatings are flammable, they will be stripped from the area of hot work to prevent ignition. Adequate extinguishing equipment will be available.

4.8. CLEANING OF PERMIT SPACES

Prior to cleaning permit spaces:

- a. The Entry Supervisor will survey the surrounding area to determine the necessary steps to avoid hazards. Any or all of the following steps may be required:
- b. Conduct a pre-cleaning orientation and training session for each unusual or atypical job to inform employees of cleaning procedures, potential hazards, sources of ignition, and methods for their control.

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- c. Ensure that all necessary precautionary measures are taken to avoid ignition sources during cleaning where flammable contaminants might be released.
- d. Where cleaning operations involve the use of chemical solvents, determine the flammable or toxic properties, or both, of the cleaning solvents as an integral part of the initial preparations.
- e. Where feasible, while working from outside the space, remove scale, product residue, or cleaning solvent sufficiently to maintain the concentration of atmospheric contaminants below the PEL or TLV. If entry is required, all employees will wear applicable protective equipment.
- f. An authorized person will ensure that sludge-laden water and product residue is disposed of in a manner that will not constitute a hazard to employees, equipment or the environment.
- g. If open-type electric-powered or internal combustion engine driven equipment is used for the removal of sludge and excess water from permit spaces that have contained flammable materials, all necessary special precautions will be taken to minimize the potential hazards.

4.9. MATERIAL SAFETY DATA SHEET (MSDS) AVAILABILITY

If an injured entrant has been exposed to a substance for which a MSDS or other similar written information is available, the MSDS or written information will be kept at the worksite and will be made available to the medical facility which may treat the exposed entrant. The specific MSDS will be attached to the site-specific entry permit where applicable.

4.10. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Although engineering controls (e.g., ventilation) is the preferred control measure, specific operations may require the use of PPE. The PRCS Coordinator will specify the personal protective equipment and procedures that are required to protect authorized entrants from hazards encountered in permit spaces. These selections will be contained on the entry permit. For information concerning PPE reference Vision Painting Inc. PPE Program.

4.11. OTHER SAFETY REQUIREMENTS

Other safety requirements needed for working in permit spaces include:

1. Illumination of the work area shall be sufficient to provide a safe work place. Temporary lighting will meet the following requirements:

- a. Guards will be placed over exposed light bulbs.
- b. Heavy-duty flexible electric cords with grounded connections will be used.
- c. Keep cord clear of working and walking surfaces to prevent cord damage and tripping hazards.
- d. Ground noncurrent-carrying metal parts of the lighting fixtures.
- e. Use ground fault circuit interrupters for work in wet area and/or conductive surface and for portable lighting.

2. Portable electric tools and equipment will conform to the National Electric Code and National Fire

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Protection Code requirements.

3. Safety approved air driven or explosion proof tools appropriate for the class will be used when flammable liquids, vapors or gases are present.

4. All electrical cord, tools and equipment will have heavy duty insulation and visually inspect by the Entry Supervisor for defects prior to entering the permit space.

5. Cylinders of compressed gases will not be taken into the permit space and feed lines will be disconnected at the cylinder valve and removed from the space when not in use. Respiratory equipment using gas cylinder is exempt.

6. Fire extinguishers equipment, appropriate for the type of fire hazard present, will be available in the space anytime there is a possibility of a fire hazard.

- a. Ladders will be adequately secured to prevent them from slipping or falling.
- b. Use ground fault circuit interrupters when working with power tools.

4.12. PRE-ENTRY SAFETY MEETING

Prior to entry, the Entry Supervisor will conduct a review of the entry permit procedures with the attendant and authorized entrants. The Pre-entry Safety Meeting (pre-entry meeting) will cover at least the following:

- a. Purpose of Entry
- b. Air Monitoring Requirements
- c. Ventilation Requirements
- d. Entry Conditions
- e. PRCs Checklist
- f. Identification of Roles and Responsibilities
- g. Emergency/Rescue Procedures
- h. Review of air monitoring data with Entrants and Attendants
- i. Communication Systems Used

Entry will not commence until all conditions listed on the entry permit are met.

4.13. EMERGENCY RESPONSE RESCUE TEAM

Vision Painting Inc. has not developed a Rescue Team for permit spaces and will rely on local emergency responders or the Host Employer's rescue team. If local emergency responders are designated by the Host Employer as the means of PRCs rescue, they are responsible for giving them an opportunity to examine the site, get permission to fulfill this role, and practice mock rescues.

4.13.1. Non-Entry Rescue Retrieval Systems or Methods

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Primary emphasis will be given to non-entry rescue at Vision Painting Inc. To facilitate non-entry rescue, retrieval systems or methods will be used whenever an authorized entrant enters a permit space unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Equipment selection and use procedures will be contained on the entry permit. Minimum requirements include:

- a. The use of chest or full body harness with a retrieval line.
- b. The retrieval line will be attached to a mechanical device or fixed point outside the permit space in such a way that rescue can begin as soon as possible.
 - a. A mechanical device will be available to retrieve personnel from vertical type permit space more than 5 feet deep.

4.13.2. Evacuation of the permit space will be ordered under any of the following conditions:

- a. If the attendant detects a prohibited condition identified on the entry permit.
- b. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant.
- c. If the attendant detects a situation outside the space that could endanger the authorized entrants.
- d. If an unsafe condition develops.
- e. If the attendant cannot effectively and safely perform all the duties listed in this section.

4.13.3. Requirements for Emergency Entry Into Permit Spaces

The following requirements apply to employees who enter permit spaces to perform rescue services. The PRCS Coordinator will insure all emergency response/rescue team members are properly trained in these procedures:

1. Each member of the rescue team will be trained to properly use the personal protective equipment necessary to make rescues from permit spaces.
2. Each member of the rescue team will be trained to perform the assigned rescue duties. Each member of the rescue team will also receive the training required of authorized entrants.
3. Each member of the rescue team will practice making permit space rescues at least once every 12 months by means of simulated rescue operations in which they remove dummies, mannequins, or actual persons from the actual permit spaces or from representative permit spaces. Representative permit spaces will, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue are to be performed.
4. Each member of the rescue team will be trained in basic first aid and in cardiopulmonary resuscitation (CPR). At least one member of the rescue team holding current certification in first aid and in CPR will be available during rescues.
5. Entry permits will contain required emergency rescue procedures. The procedures will be reviewed during the pre-entry meeting. Reference permit space procedures which outline specific rescue procedures.

5. TRAINING REQUIREMENTS

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Entry Supervisors will verify that training is provided to all employees who enter into permit spaces. The PRCS Coordinator facilitates or will develop and deliver PRCS training classes. The purpose of training is to ensure employees have the understanding, knowledge, and skills necessary for the safe performance of their duties. Training will establish employee proficiency in their duties and will introduce new or revised procedures as necessary. Certification that the required training has been accomplished will be maintained. The certification will contain each employee's name, the signature or initials of the trainers, and the dates of training. The certification (Attachment 4) will be available for inspection by employees and their authorized representatives. A copy of the training certifications will be kept in the company training files. Training will be provided to each affected employee:

- a. Before the employee is first assigned duties that require entry into permit spaces.
- b. Before a change in assigned duties.
- c. Whenever there is a change in permit space operations that present a hazard about which an employee has not previously been trained; and
- d. Whenever the Entry supervisor or PRCS Coordinator has reason to believe either that there are deviations from the permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

6. CONTRACTORS

If a contractor is utilized to perform operations within a permit space, the contractor will ensure compliance with applicable OSHA regulations and this program. A contractor may utilize another program if submitted in writing and approved by the PRCS Coordinator. This program will be subject to audit by the PRCS Coordinator. If contractors are approved for work, the following requirements will be observed:

1. The contractor will be informed that the workplace contains PRCSs and that permit space entry is allowed only through compliance with the requirements of this section.
2. The contractors will be informed of the potential hazards when working in each permit spaces and any noted experience from working in those permit spaces.
3. The contractor will be apprised of any precaution or procedure that each facility has implemented for the protection of employees in or near permit space.
4. The contractor will be debriefed at the conclusion of entry operation regarding any issues related to permit space operations.
5. The PRCS Coordinator will approve all permit entry operations and provide technical support as needed.
6. Contractors will comply with the requirements of this procedure.
7. Contractors will obtain all necessary information before entry into permit spaces.
8. Contractors will inform the PRCS Coordinator of any hazards confronted or created during entry operations; either immediately or through a debriefing, as needed. This information will be documented on the entry permit. The written contract will specify that the contractor is responsible for the safety and health of its employees.

7. EVALUATION OF THE PRCS PROGRAM

The PRCS Coordinator will review the effectiveness of the PRCS procedures by conducting a review of all canceled permits on an annual basis. Identification of any deficiency will result in an appropriate change in work control procedures, or other measure being taken. The checklist in Attachment 5 will be used for the evaluation.

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8. DEFINITIONS

Acceptable Entry Conditions—The conditions that must exist in a permit space that allow entry and ensure that employees involved with a permit-required permit space entry can safely enter into and work within the space.

Attendant—An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendants' duties assigned in this procedure.

Authorized Entrant—An employee who is authorized to enter a permit space.

Blanking or Binding—Absolute closure of a pipe, line or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

Permit space—A space that: is large enough and so configured that an employee can bodily enter and perform assigned work; has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and is not designed for continuous employee occupancy.

Double Block and Bleed—The closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Emergency—Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

Engulfment—The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

Entry—The action by which a person passes through an opening into a permit required permit space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry Permit—The written document that is provided by a Vision Painting Inc. Entry Supervisor to allow and control entry into a permit space.

Entry Supervisor—The person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

NOTE: An Entry Supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this procedure for each role he or she fills. Also, the duties of the Entry Supervisor may be passed from one individual to another during the course of an entry operation. This will be accomplished formally on the entry permit.

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Hazardous Atmosphere—An atmosphere that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

Flammable gas, vapor, or mist in excess of 10% of its LEL; or

Airborne combustible dust at a concentration that meets or exceeds its LFL.

NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.

Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published and which could result in employee exposure in excess of its dose or permissible exposure limit.

NOTE: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, and impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this definition.

Any other atmospheric condition that is immediately dangerous to life or health.

NOTE: For air contaminants for which the Occupational Safety and Health Administration (OSHA) has not determined a dose or permissible exposure limit, other sources of information, such as Material Data Safety Sheets that comply with the Hazard Communication Standard 29 CFR 1910.1200 published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

Hot Work Permit—Written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

Immediately Dangerous to Life or Health (IDLH)—Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

NOTE: Some materials, hydrogen fluoride gas and cadmium vapor, for example, may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12 - 72 hours after exposure. The victim "feels normal" from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

Inerting—The displacement of the atmosphere in a permit space by a non combustible gas such as nitrogen to such an extent that the resulting atmosphere is non combustible.

NOTE: This procedure produces an IDLH oxygen-deficient atmosphere.

Isolation—The process by which a permit space is removed from service and completely protected against

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the release of energy and material into the space by such means as blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

Line Breaking—The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Non-permit space—A permit space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Oxygen Deficient Atmosphere—An atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen-Enriched Atmosphere—An atmosphere containing more than 23.5% oxygen by volume.

Permit Required Confined Space (Permit Space)—A permit space that has one or more of the following characteristics:

Contains or has a potential to contain a hazardous atmosphere.

Contains a material that has the potential for engulfing an entrant.

Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.

Contains any other recognized serious safety or health hazard.

Permit Required Confined Space Program (Permit Space Program)— Vision Painting Inc. overall program for controlling, and where appropriate, for protecting employees from permit space hazards and for regulating employee entry into permit spaces.

Permit System—A written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

Prohibited Condition—Any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

Rescue Service—The personnel designated to rescue employees from permit spaces.

Retrieval System—The equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for nonentry rescue of persons from permit spaces.

Testing—The process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

NOTE: Testing enables devising and implementing adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to and during entry.